SUMMER 2009

FOCUS

AFSOC Commando Safety Journal

IN THIS ISSUE...

FOCUS

AFSOC Commando Safety Journal

Summer 2009
Volume XIIII, Number 2

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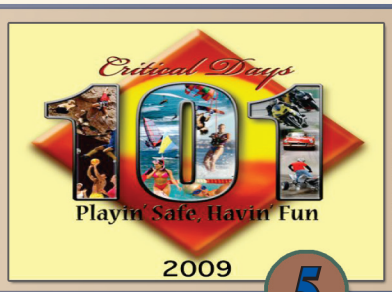
CONTE

Departments



NTS

On the cover...

Photo by Amn Maynelinne De La Cruz

Nick Homyk guides an M60 tank for safe positioning on the Melrose Range. The tank is 1 of nearly 100 that will arrive to be used as targets for AC-130H Spectre Gunships and other aircraft.

Features

FROM THE DESK OF THE AFSOC COMMANDER

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SPECIAL OPERATIONS COMMAND

16 MAR 2009

MEMORANDUM FOR ALL AFSOC PERSONNEL

FROM: AFSOC/CC
100 Bartley Street, Command Suite
Hurlburt Field FL 32544-5273

SUBJECT: Risk Management

1. Air Commandos – it is an exciting time to be in AFSOC. As we transform the command, we must move forward as a complete team, and I need each of you mentally and physically ready to accomplish the mission. We have limited assets and highly trained and unique personnel which we cannot afford to waste on needless mishaps. I expect you to apply *effective* risk management in everything you do, both on and off duty.

2. Your leadership has the tools, and my total support, to make the smart choices. Your missions involve inherent risk, but smart decisions include knowing when to elevate concerns to the appropriate level and ensure all relevant options are considered. Risk management does not hinder or stop the mission. In reality, healthy personnel and undamaged equipment ensure mission success.

3. Wherever Air Commandos are, they serve as professionals. As your commander, it is my duty to hold you accountable for your actions whether on or off-duty, deployed or at home station. All Air Commandos are expected to adhere to established guidance, procedures, and technical orders. To do anything less is to shirk the trust the American people have placed in us.

4. Now, as never before, AFSOC and America face many challenges. We must act as a team of professionals safeguarding the irreplaceable assets in our care. We will continue to execute the mission and take the fight to our enemies. We must continue to look out for each other and eliminate unnecessary risks.

DONALD C. WURSTER
Lieutenant General, USAF
Commander

Readers' COMMENTS

Publisher's Note:

We have not received any recent comments or suggestions on our publication. Is no news good news? Let us know how we are doing.

We'd like to recognize the staff of the 27th Special Operations Wing Safety office for providing us with most of the content for this edition. Thanks a million!

27th Special Operations Safety office

L-R: MSgt Gonzalez, MSgt Keely, MSgt Kuykendall, Mr. Peterson, TSgt Lonjin, MSgt Wilson, SSgt Bentley, MSgt Siroin, Lt Col Pettit, Mrs. Pressley, Capt Stewart

"I would give all my fame for a pot of ale and safety." Shakespeare

Readers may submit comments and articles to: Editor, *Focus*, HQ AFSOC/SEP, 229 Cody Avenue, Suite 102, Hurlburt Field, Florida 32544-5312.

DSN 579-5934/Commercial (850) 884-5934/ Fax 2883, or e-mail: afsoc.sep@hurlburt.af.mil. Include your name, unit address, phone number, fax number, and E-mail on all submissions.

View from the Top

An Interview with Colonel Babette Lenfant
27 SOW Mission Support Group Commander

By Lt Col Michael Pettit, 27 SOW/SE

Colonel Babette Lenfant is the Commander of the 27th Mission Support Group (MSG) at Cannon AFB. She commands a unit that provides base support and services across a wide range of specialties, including emergency/support services relating to civil engineering; force protection; environmental compliance; information, personnel, and network management; lodging; food services; recreation/fitness; contracting; deployments; logistics readiness; and transportation. I sat down with her one afternoon to hear her ideas about safety.

CoS: What do you see as your responsibility regarding safety?
Col L: To spread a culture where everyone feels comfortable stopping somebody who is taking a risk that isn't worth taking. For our younger Airmen, I want to make sure we train them to think through the times when they may have to take risks. Getting them to think, "What do I have to do, and what is the risk I'm taking?" I truly believe that safety is everyone's responsibility. If we're safe individually, then across the board we're safe, right?

CoS: Are there any events that have shaped your safety philosophy?
Col L: I've had friends who have had people in their units killed due to accidents. I think that has molded me to understand there is no real day off from safety and that doing something unsafe can lead to a loss of life.

CoS: Do you think of safety differently because of your position?
Col L: Having six different squadrons underneath the MSG, I have become more of a safety generalist. There are some given truths across all activities, but also specifics within a squadron. Those are different for say, security forces than they are for logistics readiness. It forces me to have a broader scope.

CoS: Can I ask what unit in your command worries you the most?
Col L: Probably security forces. Making sure people are safe and responsible while bearing firearms is one of my concerns. I have total confidence in my security forces people, so the concern is not really with them; it's just not something I'm used to.

CoS: Some people see safety as black and white, or a line that should not be crossed. Others see it as an ever-changing standard that changes with the situation. Which side do you agree with more?
Col L: Although I'm more of a black and white person normally, in this regard I'm probably a little more grey. If an AFI says, "thou shall not..." then I agree it's black and white. But if there's a mission requirement that involves a safety issue, you're going to have to balance the two. Unfortunately, a lot of our AFIs become black and white as the result of an accident—something happens and we realize that it's something we should have considered in the first place.

CoS: How is safety in your Group unique?
Col L: I don't know that I would call it unique, because like I said, if everyone takes care of their own

area, then across the Wing we'll be safer. Each of the squadrons has their specific areas, but general safety awareness is not that different between squadrons.

CoS: It sounds like you're saying there should be a common safety philosophy for all units?
Col L: Right. There's some overarching common safety ideas. Specific work centers have risks based on what they work with everyday, and that's the part that's unique.

CoS: How would you respond to this statement: "The AF is too risk averse, and intolerant of risk takers."
Col L: [long pause) I don't agree with it. Many of our safety standards were developed as a result of some type of accident. You can be unsafe in anything you do everyday if you don't do it right.

CoS: Motorcycle fatalities are becoming an increasing concern. What would your feelings be if DoD prohibited its members from riding motorcycles?
Col L: If riders do what they're supposed to, then it's no more dangerous than other activities people do. I think what we would find is that some people would ride anyway, and we might have more accidents because we wouldn't host motorcycle safety courses, or the squadron CC wouldn't talk about motorcycle safety.

CoS: What would you want a brand new Airman to know about safety?
Col L: I want them to understand risk--to think through potential consequences. I want them to know they are our safety representative and can stop something that is unsafe. They need to feel comfortable doing this, even if their CMSgt is standing there. They should feel comfortable saying, "I don't think this is safe."

CoS: I think lots of Airmen still feel peer pressure to do things that maybe they wouldn't do alone.
Col L: You know, I tell people about how when I was young, I used my parents as my "out". I'd say, "My parents will kill me" or something to get me out of a situation. I would tell our young Airmen to do the same thing. Use your Air Force career or "I would get in a lot of trouble at work" as your "out", to kind of give you an edge.

CoS: Have you seen Air Force Safety philosophy change during your career?
Col L: I think there's more focus on it now. When I came in, I don't remember having safety briefings before a three-day weekend. I don't remember going through the ORM-type risk evaluation—identifying the risks and trying to mitigate them. I think we've gotten more focused on that.

CoS: What do you think about this statement: "We're never going to have zero mishaps. We're dedicating too many resources trying to chase down those last few statistics."
Col L: I do think there is a balance between resources and benefit—a point of diminishing returns. I don't know, maybe we have the right balance now and that's why we don't feel we would get better.

CoS: Do you think it's possible to have a year with zero ground safety mishaps?
Col L: I think that should be the goal. But I don't know that we'll ever get there. One life lost is too many, but it all comes down to human nature. We could have a perfect safety culture, but still have people who say, "That doesn't apply to me". We can talk about being safe, but we're not going to change the nature of some people who are going to do things anyway.

CoS: Are there any final comments you'd like to add?
Col L: I really do believe it comes down to every individual feeling comfortable about speaking up and pointing out something that is not safe. If everyone takes on safety for himself or herself, then our safety posture will be better.

By Mr. Donald Beckham, AFSOC/SEG

The 101 Critical Days of Summer 2009 campaign begins at 1600 on 25 May 2009 and ends at 0700 on 8 Sep 2009. This year's campaign is actually 106 days long.

During last year's campaign the Air Force experienced 16 fatalities, and 19 during FY 07. As in past years, motor vehicle fatalities accounted for most of our losses—five to PMV2 (motorcycles) mishaps and three to PMV4 (autos). Unlike years past, none of these mishaps were attributed to alcohol use (compared to four in FY07).

Four of the 16 fatalities were sustained by AFSOC. Personal risk management and poor judgment were the primary reasons for all of these mishaps.

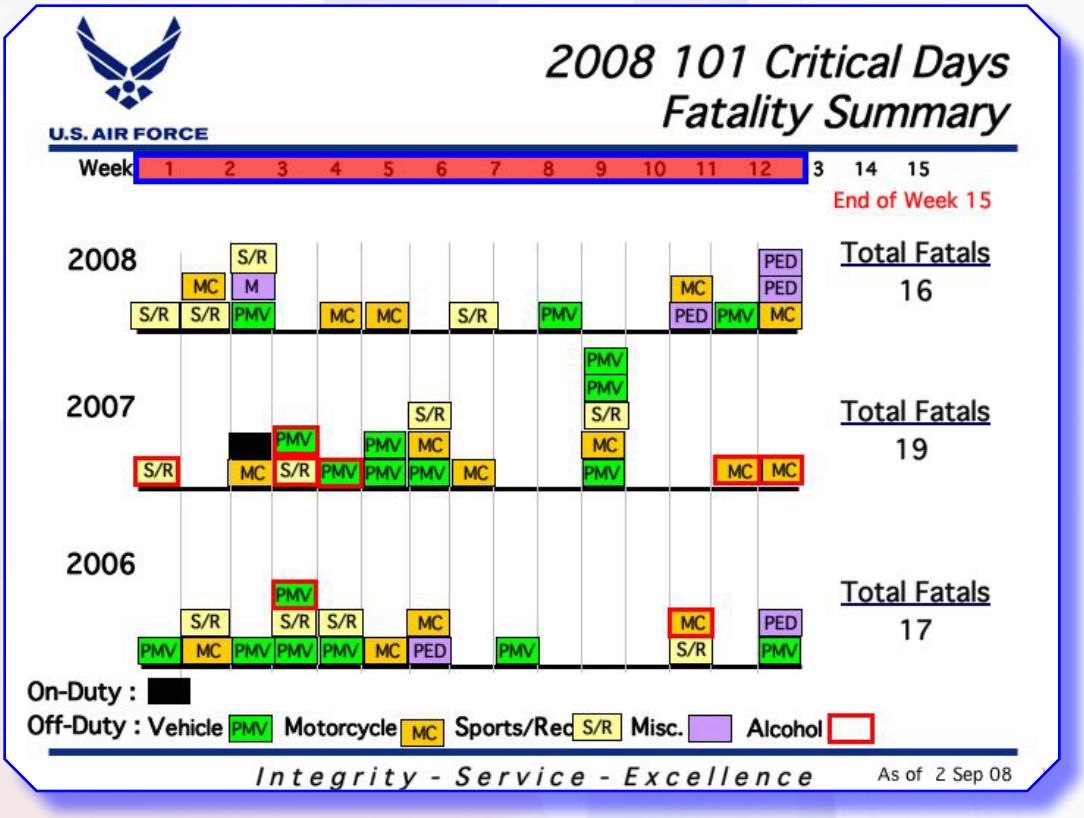
This Air Force-wide campaign has been run annually since the late 1960s and was developed to counter the traditional increase in Air Force mishaps and fatalities that occur during the summer months.

Campaign efforts attempt to increase personal awareness of risk and thereby, reduce the number of summer mishaps and fatalities.

What Does this Mean to You?

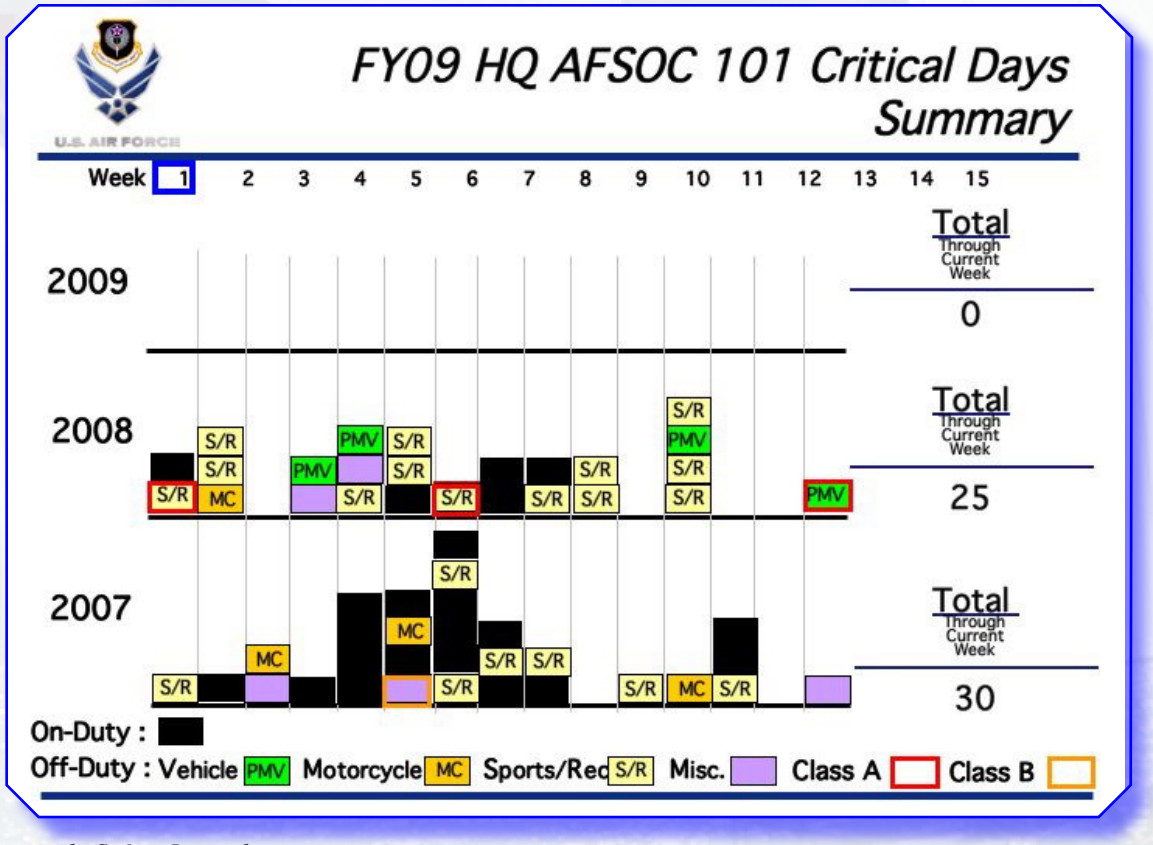
- Plan ahead for your activities and trips
- Use your personal protective equipment
- Read instructions or get needed training
- Be vigilant
- Don't overdo it
- Don't rush
- Hydrate
- Rest
- Play it safe
- Never put yourself or others into a dangerous situation

Remember, your body will break!!!



Why 101 Days?

Your safety!!!!
Your family deserves to have you around
Safely enjoy your summer free time
Don't become a statistic
Don't end your summer fun before it begins



AFSC ANNOUNCES

Flight Safety Plaques

1 SOS, Kadena AB, Japan

4 SOS, Hurlburt Field, Florida

6 SOS, Hurlburt Field, Florida

8 SOS, Hurlburt Field, Florida

16 SOS, Hurlburt Field, Florida

17 SOS, Kadena AB, Japan

19 SOS, Hurlburt Field, Florida

318 SOS, Cannon AFB, New Mexico

Explosives Safety Plaques

1 SOW, Hurlburt Field, Florida

27 SOW, Cannon AFB, New Mexico

1 SOEMS, Hurlburt Field, Florida

2008 ANNUAL AWARDS

LATE BREAKING NEWS--AFSOC BRINGS IT HOME!

The Fall Edition of FOCUS will feature our three Chief of Staff of the Air Force safety award winners - CONGRATULATIONS AFSOC!

MAJOR GENERAL BENJAMIN FOULOIS TROPHY

AFSOC

The Maj Gen Benjamin Foulois Trophy was established by the Order of the Daedalians, an organization of WWI pilots. The award is presented to the MAJCOM having the most effective aircraft accident prevention program for the previous fiscal year.

COLOMBIAN TROPHY

4TH SPECIAL OPERATIONS SQUADRON

The Republic of Colombia established the Colombian Trophy in 1935 to recognize the Air Force General Headquarters Group with the lowest mishap rate in the preceding year.

SYSTEM OF COOPERATION AMONG THE AIR FORCES OF THE AMERICAS (SICOFAA)

6TH SPECIAL OPERATIONS SQUADRON

The SICOFAA Flight Safety Award was established at the Conference of the Chiefs of the American Air Forces in May 1976. The purpose of the award is to promote safety in Western Hemisphere air forces by recognizing worldwide flight safety accomplishments of military organizations.

FOUR LEVELS

By Lt Col Michael Pettit, 27 SOW/SE
Chief of Safety

Some safety topics can be rather controversial. Does the Air Force have the right safety philosophy? Are we being too risk averse? Do we put the right people in safety jobs? I wanted to know what different people think. I reached out across AFSOC to find a Squadron Commander, a Chief Master Sergeant, a First Lieutenant, and an Airman Basic. I asked them all the same questions, but I got some very different opinions. Here is what they said...

CoS: What do you see is your roll in your unit safety program?
Sqdn CC: The lead person.
CMSgt: My role is to integrate ORM into all aspects of our daily operations. Also, to ensure all personnel [in the Medical Group] know and understand that patient safety is paramount. We will not accept any unnecessary risk to our patients and staff.
1Lt: We are all responsible for the prevention, intervention, and reporting of mishaps. Safety should be the #1 concern when flying day-to-day.
AB: I see everyone as a safety monitor, so it is my job to be looking out for risks.

CoS: Do you think you act differently on duty vs. off duty with regard to taking risks? Why?
Sqdn CC: No. You're more mature the older you get, and there is a certain amount of responsibility you have as a commander--you need to lead by example.
CMSgt: No. I still evaluate the activities my family and I engage in to ensure we participate in our hobbies and sports in the safest manner possible. For instance, while walking through the neighborhood after dark, we wear appropriate reflective gear, stick to well-lit routes and stay on sidewalks or pathways. Another example would be requiring my children to wear proper safety gear while skateboarding. Of course they complain, but practicing a few safety measures has prevented many serious injuries. If it were not for the Air Force and the safety courses I have attended over the years, I most likely would not be here today.
Prior to entering the military, the wear of seatbelts was not required or enacted into law in many states. After entering the military, this was mandatory and briefed at every safety briefing I attended. One morning, I was recalled to duty at 0500 hrs. On the way to work, I hit a deer at 65 mph. I rolled my car three times but walked away from the accident with minor injuries because I was wearing my seatbelt. The experience reinforced the safety training I had received over the years.
1Lt: Yes, I take more risks off duty. There are no procedures for "fun" activities, and often times an "ORM" perspective falls out of family or fun type activities.
AB: I don't think I act differently off duty than I do on duty. I try to treat every risk the same and do my best to be as safe as I can be in every activity.

CoS: Do you feel pressure to take risks? Do you feel pressure to be overly careful?
Sqdn CC: No to part one, yes to part two. It's almost like we're in a one-mistake Air Force, and I as the commander, will be held responsible for all that happens.
CMSgt: No.

1Lt: I do not feel pressure to take risks. I do err to the side of caution though sometimes more than I should, just as a "career preventative" measure.
AB: I don't feel pressure in either extreme; but rather understand that I need to be aware of my surroundings and only take slight, necessary risks.

CoS: What kind of person should be assigned to work in a safety shop?
Sqdn CC: One that understands my intent, is a self-starter, smart, and leads by example.
CMSgt: A very dedicated member who is willing to stand up and provide safety guidance on the spot and in group forums. One who is also able to assess the risk in given situations and provide candid, leadership feedback on the employment of safety standards and protocols.
1Lt: Honest, trustworthy, and someone who people look to as an example.
AB: They should be able to weigh the risks and benefits of an action and be an example to every other person they meet.

CoS: Does the Air Force have the right philosophy about safety?
Sqdn CC: Yes and No. On the one hand, you're told to get the mission done, which means pushing the envelope in some circumstances. But yet if something happens, you can get hung out to dry. The flying business is not inherently safe.
CMSgt: Yes.
1Lt: Yes.
AB: Yes, the Air Force has a wonderful philosophy regarding safety.

CoS: Can you tell me about an event where you thought "this is too risky"?
Sqdn CC: Overall in SOF as we mass-produce young crewmembers at too fast of a pace. I view this as very risky.
CMSgt: Years ago, we had just held a funeral service for one of our base members who had passed away in a tragic motorcycle accident. This Airman had been driving his motorcycle at speeds in excess of 100 mph, lost control, and wrecked. This loss of life was completely unnecessary and tragic. This incident drove mandatory safety training for all members assigned to the installation. A few days later, I was traveling home and was passed by two Airmen riding motorcycles, driving at unsafe speeds, passing between vehicles, and popping wheelies. I can't help but wonder if they had paid attention during the safety briefings we all attended earlier that week and what impact, if any, the loss of one of our own members had on them.
1Lt: Sometimes things get pushed to the limits of comfort in training, people want to "train like we fight." This can happen with weather, crew duty day, maintenance, etc.
AB: For the holidays, my roommate and I went [out of town] to visit her family, and the day after Christmas, it was snowing. We had already planned on going shopping that day, and being from southern California, I had never driven in the snow before. Fortunately, she is used to cold weather

and walked me through what I needed to do differently.

CoS: What should be done to lower the number of motorcycle fatalities?
Sqdn CC: Continue to educate. Again, riding a motorcycle is not inherently safe.
CMSgt: Continue to provide motorcycle safety training and safety briefings to all members.
1Lt: Motorcycle riding is inherently more dangerous than riding in an automobile. No extra amount of training or safety briefings will change that. People accept the risks involved when they decide to ride a motorcycle. Often times it is not the fault of the rider specifically, but the other drivers who are not paying attention.
AB: I believe that we are doing all we can. Educating motorcyclists, requiring the use of gear, etc. Driving over the speed limit, performing risky turns, driving in unsuitable conditions, and other risky behavior are the choice of the individual.

CoS: Who is more dangerous, a person who has been in the AF for 15 years, or a person who has been in the AF for 15 months?
Sqdn CC: Both. The older guy will accept risk based on experience, and for the younger guy, it will be based on a lack of experience.
CMSgt: Depends. Both can be.
1Lt: 15 months because they are not as proficient in the job and the safety procedures. It could be said that someone in 15 years would be more lax and complacent with safety, but a certain amount of safety training and common sense in your assigned job is ingrained into peoples' daily lives and activities.
AB: I believe both people are equally dangerous. The person who has been in the AF for only 15 months doesn't always know what they are doing and will take risks out of inexperience. While the person who has been in the AF for 15 years knows what they can get away with, and therefore, takes risks because they feel comfortable that they won't be caught.

CoS: Is it possible to have zero mishaps in a year? If so, how? If not, why?
Sqdn CC: No. Some events are beyond our control. Is it realistic to think there will never be any driving accidents? As long as people drive, there will be driving accidents. As long as people fly, there will be flying mishaps.
CMSgt: Not sure...I've never seen it happen.
1Lt: No, to err is human. People will make mistakes. We do more with less every day. Accidents are inevitable. I believe the best we can do is recognize and break error chains to prevent large mishaps. Otherwise, planes break, people get tired, distracted, etc. Things will happen.
AB: I don't know that it is possible to have zero mishaps in a year. People are people, and something is bound to go wrong because everyone takes risks every day.

CoS: Are there any final comments you'd like to add?
Sqdn CC: We must be very careful in SOF. We are breaking the SOF truths, and this is not a good thing. We are setting ourselves up for failure, and someone (probably the squadron CC) will be held accountable. I feel the growth is too fast. We are not allowed to focus primarily on our job (to fly). The Air Force is too worried about being politically correct. The demands placed on the Airmen's time don't allow proper allocation/focus on the primary job of flying. The AF has gotten all it can out of "do more with less". Now it has switched to the idea of "consolidate everything"--cut more support and place even a heavier burden on the shoulders of the Airmen.

AFSOC SAFETY RUSTY DAGGER

CROSSTELL

FLIGHT

Time to knock some of the rust off the old dagger and get back to sharing our rendition of what really occurred on a few of our recent mishaps.

Expensive edger-- Spring is upon us and we need to break out the garden tools to clean up the yard. It would appear, some think using the prop of a PC-12 would suffice in dressing up a runway or taxiway somewhere, not to say that really would happen. After shooting approaches on a local training sortie, a PC-12 crew returned to find on post-flight, damage to all four blades of the prop. Neither the operators nor maintainers were aware of any condition that would have led to the damage. Also, no one can explain why the lack of vegetation overgrowth and any of the approach ends of the local airfields exists. Jury is still out on this one for the true cause of this anomaly.

Look mom, no training wheels-- An MQ-1 landed in the AOR after one of their short missions, and the crew experienced the aircraft pulling to the right. No, the front end alignment wasn't askew, nor was the nose wheel steering out of whack-------the right main gear wheel had fallen off and was rolling down the runway. The launch and recovery crew was unaware of the situation, other than their steering inputs were pointless, until tower advised them. At this point, the crew stopped taxi and turned recovery over to maintenance. Investigation found the lugs sheared on landing sending the wheel on travels of its own. Guess we're lucky the Pred has a good center of gravity and didn't fall over like a bike without a kickstand.

Easter without bunnies at Cannon this year-- Bad enough we have to worry about bird strikes damaging our aircraft, now the rabbits are trying to get into the act. There are several wildlife issues abounding in New Mexico to include prairie dogs, birds, and now.....packs, gaggles, flocks, herds, whatever you call a slew of rabbits. An MC-130W crew was accomplishing pilot proficiency at a local field, and upon one landing felt a thud. The crew quickly shut down and assessed any damage imposed. Closer investigation found Thumper's remains and a fresh pelt lodged in the mains. We're still waiting to hear from the investigator if he recovered the lucky foot.

GROUND

Welcome back to this very infrequent edition of the RD! This "How To" edition focuses on how to really, really hurt yourself. I will, for lack of a better title, call this edition "*Misadventures in Blunderland*".

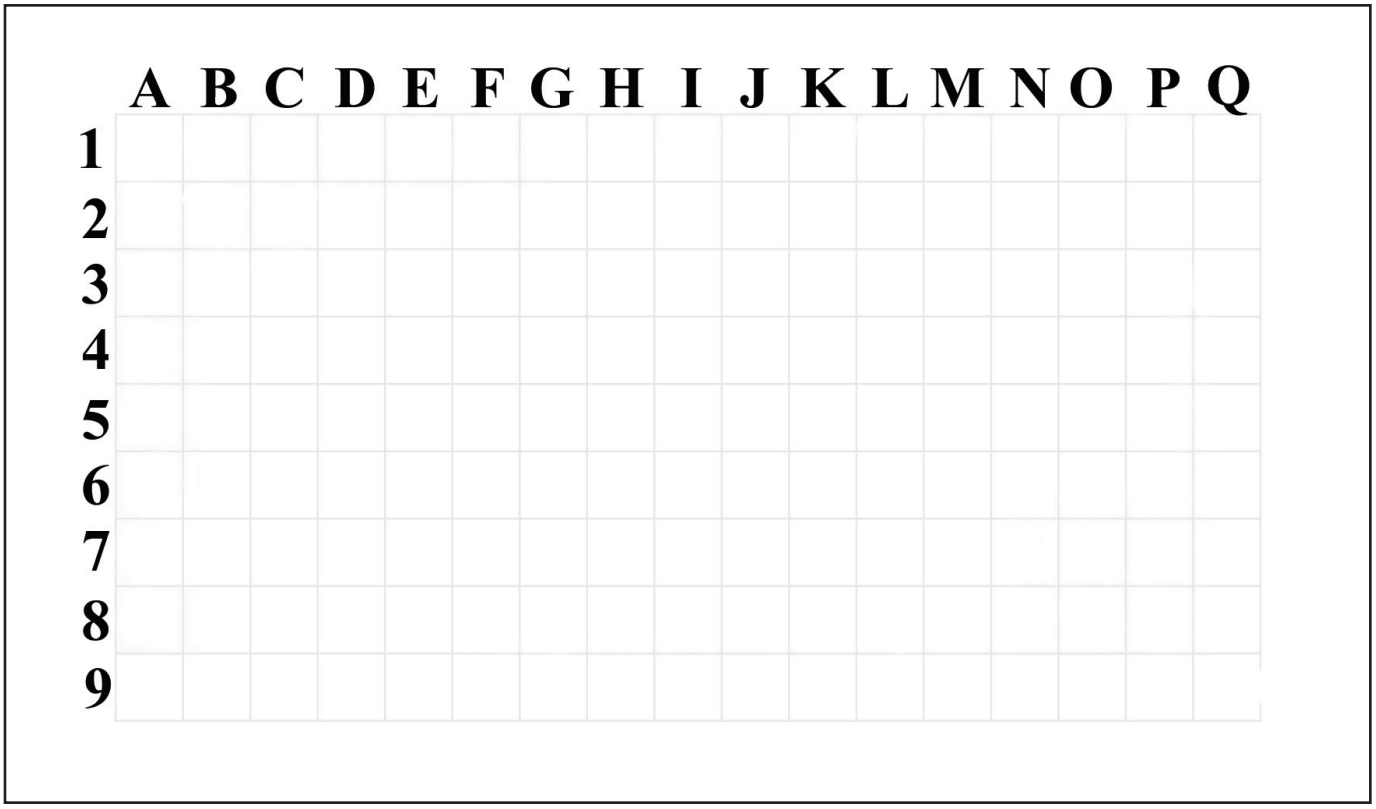
Anything for a friend – Help with plumbing repairs; no problem. Watch the house while we are on leave; sure! Climb up on my roof and help me and Biff put up shingles; I've never done that, but okay. I would love to call these guys the three amigos, but it probably looked more like the three stooges. Up they go, 12 feet in the air. Like a finely choreographed dance they start the job. Unfortunately, "Fall Protection Freddy" decided to step back without looking to see how close he was to the edge. Back flip with a triple gainer; judges score: 10. Outcome; one surgery to install pins and a bar in his left wrist; another to insert screws in his elbow; and finally, a third to remove the bar from his wrist and add a few more screws because his wrist looked kind of "floppy".

Down That Red Dirt Road – Wanna impress the new girlfriend? Here are a few tips. Drive something besides a PoS '99 Ford Focus, don't drive 90 mph on a dirt road, and never flip it into a ditch causing her injury! In 200l, Earnhardt violated all three. His injuries consisted of a bump on the head and the loss of one duty day. Luckily Match.com is always accepting new members.

Get Your Motor Runnin, Ride Off Of The Highway – Sorry about the lyric change for all you Steppenwolf fans out there, but this was the outcome for two Commandos over the past month (read - *Trend*). Both were on 650cc motorcycles, in a curve, and going way too fast. Fortunately, both had the same outcome - they lived to ride another day!

Ahhh, springtime is in the air. The grass begins to green, the flowers bloom and bikers break out the chaps for the first time in months (at least publicly). Now is the time to start working on those rusty skills. Evaluate your own ability and if need be, get into a Motorcycle Safety Class. It could just save your life! The last place you want to find out you have lost your touch is the highway. Folks, since 1 March the Air Force has lost two people to needless motorcycle mishaps (as of April 09). Don't become a statistic.

A MODEL



In 1990, Dr. James Reason, a British psychologist, developed a way to illustrate how human failures can lead to an accident. He believed that although organizations establish a system of barriers to prevent mishaps, there are always failures, or weaknesses, in those barriers. One or more of these failures, he hypothesized, is present in most if not all accidents. He developed a model to show how the right (or wrong) combination of failures can lead to a mishap. His model is widely used by aviation, emergency services, and healthcare safety advocates.

Fill in each grid square by drawing the correct pattern according to the key on the next page. The resulting picture will reveal Dr. Reason's model.

(See page 32 for the answer)

MISHAP

"Early and provident fear is the mother of safety." Edmund Burke

Reshaping Safety Investigations

By Capt Dirk Stewart, 27 SOW/SEF

MQ-1 Predator

Unmanned Aerial Systems (UAS) and MQ-1s in particular, are transforming the skies. While their capabilities are expanding at an unprecedented rate, they have singular vulnerabilities and operational procedures that make their safety investigations problematic. Investigators are learning that UAS mishaps are different than anything they're used to.

Originally, unmanned aircraft were fashioned as a cheap substitute to putting a man in the air. Consequently, they were designed and marketed with little or no backup systems or redundant capabilities. This philosophy, however, has resulted in quite a few losses.

Most UAS's have little or no protection against extreme weather. With no anti-or de-icing system, even a small amount of ice on the wings could cause trouble maintaining level flight. In addition, the engine is not designed to endure the kind of operations that are demanded of it. A 20-hours-on, 2-hours-off work cycle is a strain difficult for any engine to meet. To top it off, the crew is only able to monitor performance factors. They can tell how the airplane is flying, but not how the airplane is operating. There is no engine noise, vibrations are not felt, and the smell of burning electronics goes unnoticed. To the investigator, this often means the crew had no indications that anything was wrong until it was too late to break the mishap chain of events.

A prime example is how a UAS is controlled from several geographically separated units. One organization performs the takeoff, then hands the platform over to several other organizations who accomplish the mission phase. At sortie termination, the UAS is handed off yet again to be landed by another organization--all via satellite communications. When there's a mishap, you often have four or five crews involved, in at least two different countries, using equipment located around the world and in space,

Lt Col Debra Lee flies an unmanned MQ-1 Predator Feb 13 while deployed from Creech AFB, Nevada.

Photo by SrA Tiffany Trojca

flying an aircraft you may not be able to find. Are all of those pieces part of the "Mishap Aircraft", and all the crews part of the "Mishap Crew"? Is the crash site where the aircraft lands, or where it was being controlled?

In the Air Force Safety Center mishap investigation courses, we learn that the best process for a safety investigation is to quarantine the aircraft, records, and people (maintenance and controllers), and then systematically review evidence and interview people to determine relevant factors in the mishap. Generally, it takes a Safety Investigation Board (SIB) one to two days to get organized and mobilized. Since MQ-1s are the top requested asset by commanders in the AOR, it's unrealistic to quarantine five crews and maintenance for several weeks in order to follow the traditional systematic investigation process. There could be three or more control stations associated with the 20-hour mishap sortie. It would not be practical to impound them when they're already being used for follow-on sorties.

Instead of quarantining five crews worth of people who may have controlled the aircraft during the sortie, but not during the mishap sequence, a solution could be a standardized interview designed to quickly gather relevant information. This would allow facts to be gathered in a timely manner and return crews back to "the box" sooner. The investigator could, of course, conduct a more in-depth interview if needed, but it alleviates grounding mission critical crews while waiting for the investigator to get on the scene.

In addition, knowing how MQ-1 information is managed may help redevelop our investigation process. Since MQ-1 systems gather and record all pilot actions and aircraft responses, the investigator has the unique benefit of truly having all data available. There is no need to find the black box and cockpit voice recorder. All data is stored in the control station. This uniqueness gives a SIB the flexibility to setup anywhere, allowing for a faster, cheaper, and more efficient investigation.

As UAS mishaps challenge the definition of terms like "mishap aircraft", "mishap crew", "mishap sortie", and even "crash site", the safety world must decide if a new template is in order. It may be that without us knowing it, MQ-1s are already reshaping the safety investigation process.

MQ-1 Overview

Primary Mission: To interdict and conduct armed reconnaissance against critical, perishable targets.

- Cost: 4.5M
- Max Speed; 120 mph
- Length: 27 ft
- Height: 6.9 ft
- Payload: 450 lbs
- Range: Up to 400 nautical miles
- Armament: 2 laser-guided Hellfire missles

"In safety, it's not going to happen by magic. You have to hold people acountable, for having meetings, doing inspections, and fixing problems you find."
Allan Quilley

USAF photo by A1C
Maynelinne De La Cruz

MSgt Charles Siroin and MSgt William Keely, 27 SOW Safety office, stand beside their VPP banner outside the medical clinic

Tracking, Stealing, and Mentoring What Are We Doing With VPP?

By MSgt William Keely, 27 SOW/SE

Since being instituted in 1982, OSHA's Voluntary Protection Program (VPP) has saved private industry millions of dollars in injury compensation and lost productivity. The DoD ascertained VPP's potential in 2006 as a means to stem the rise of occupational injuries and illnesses. In December 2008, the 88 ABW, WPAFB, became the first Air Force active duty organization to earn OSHA's highest honor, "Star Status". Numerous Air Force installations have since begun the journey towards world-class occupational safety and health. Cannon AFB, Clovis, New Mexico, joined the ranks in November 2008 after a Headquarters Air Force Assessment team provided an initial VPP analysis and a road map for achieving "Star Status". With an established target date of November 2011, Cannon is steadily changing its culture from one that strives to comply with OSHA standards to one that strives to exceed OSHA standards (compliance to performance).

Safety is no longer something we do only because the AFI says to. It is now something we do because it makes sense. At Cannon, everyone is tasked to be a safety professional.

In 2008, Cannon had 27 on-duty accidents taking personnel out of the fight for 180 days, and an additional 25 off-duty accidents only added to that tally. Losing personnel due to an injury creates more work for everyone, whether you are 100% manned or 50% manned. By using VPP, we will alter this negative trend. But first, we've got to know where the danger spots are.

Members of the 27 SOW Safety office recently visited Southwest Cheese Company in Clovis, as they are also striving for "Star Status". Plant Safety Manager, Debbie Abrego, provided a tour of their operations. During the mandatory visitor safety briefing, she showed us the unique way they track mishap data. They have a floor plan of their facilities (see Diagram 1) and a silhouette of a human body (see Diagram 2) on their wall. Each time they have a mishap, they place a yellow marker on

Southwest Cheese Company Floor Plan

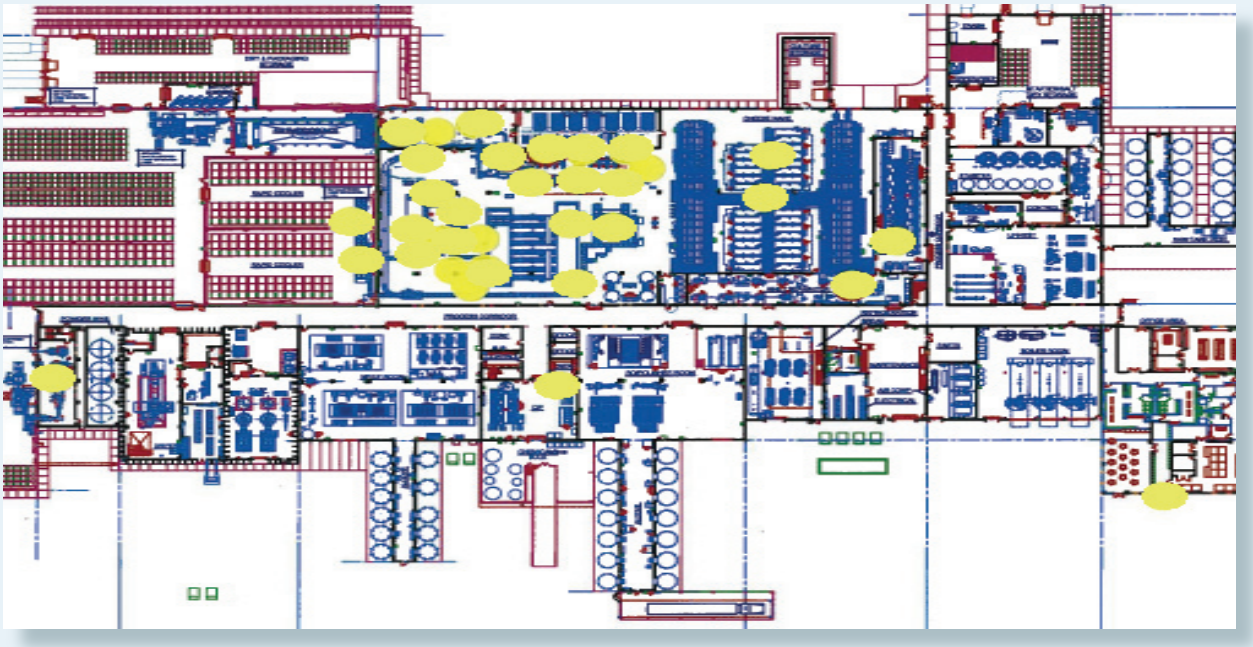


Diagram 1

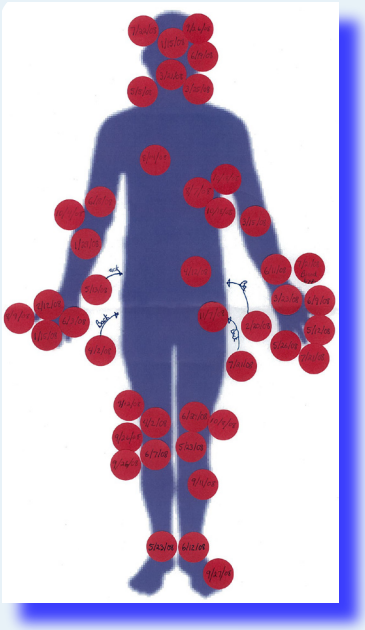


Diagram 2

the floor plan where the mishap occurred and a red marker on the human silhouette where the injury occured. The date of the mishap then goes inside the red marker.

Last year this method revealed to them that there were many injuries happening in one specific area of the plant. A critical evaluation of the area revealed that it was a workspace design that was at fault. The company redesigned the area to eliminate or mitigate the causes of people getting hurt.

The Air Force Safety Automated System used for recording mishaps makes it easy to track what the event was and what got damaged or injured, but does not provide a quick visual trending reference of where all injuries took place. Adopting Southwest Cheese Company's idea can assist in focusing prevention efforts on a certain office, building, or a section of the installation.

Under VPP, adopting ideas from private industry or military organizations is not frowned upon, but highly encouraged. In fact, one of OSHA's VPP requirements is to have an organization who has achieved "Star Status", whether military or civilian, provide mentorship to newly established VPP programs. Graciously, Davonna Armijo of the Department of Interior in Truth or Consequences, NM, has agreed to be Cannon's mentor and assist them through the process. Once Cannon achieves "Star Status", they will, in turn, be expected to act as a mentor to another company or military organization.

We here at Cannon are closing in on "Star Status". Our safety culture is changing because we've made...Everyone a Safety Rep!

"Where Are We Headed?"

(A Controlled Flight Into Terrain Case Study) by Lt Col Michael Pettit, 27 SOW/SE

On December 20, 1995, American Airlines Flight 965 was on a regularly scheduled night flight from Miami, FL to Cali, Columbia. The flight had taken off two hours late. At 2134L and 63 miles North of Cali VOR, passing 23,000 ft, the crew made initial radio contact with Cali approach (a non-radar facility). Cali approach cleared Flight 965 to the Cali VOR with a descent to 5,000 ft. Flight 965 was told to report the Tulua VOR, an en route navigational aid for an instrument approach to runway 1 at Cali. The Captain confirmed the clearance, and set up the navigation system for the First Officer, who was flying.

2135:28 Captain: ***I put direct Cali for you in there.***

(Meaning the aircraft's Flight Management System (FMS). One and a half minutes later, Cali approach asked Flight 965 if they would prefer a runway 19 landing. Since they were approaching from the north, and behind schedule, landing on runway 19 would save precious time.

2136:31 Cali Approach: ***Sir the wind is calm. Are you able to approach runway one-niner?***

2136:38 First Officer: ***Uh yeah, we'll have to scramble to get down. We can do it.***

2136:40 Captain (radio): ***Uh yes sir, we'll need a lower altitude right away though.***

2136:43 Cali Approach: ***Roger. American 965 is cleared to VOR DME approach runway one-niner. ROZO number one arrival. Report Tulua VOR.***

The crew did not accomplish a descent checklist or review arrival procedures. Instead, they relied solely on the FMS for point-to-point course guidance. The ROZO-1 arrival starts at Tulua VOR, to the Cali 21 DME fix, and ends at the ROZO NDB. Because U.S. and EUROPE arrival routes are named after their entry points, it is believed the crew expected ROZO NDB to be the first point of the ROZO 1 arrival, not the last. At 21:37, the captain called Cali approach.

2137:29 Captain (radio): ***Can American Airlines, uh, 965 go direct to ROZO and then do the ROZO arrival, sir?***

2137:36 Cali Approach: ***Affirmative, take the ROZO-1 and runway one-niner, wind is calm.***

2137:42 Captain (radio): ***All right, ROZO, the ROZO-1 to one-nine, thank you.***

2137:46 Cali Approach: ***...report Tulua and twenty-one miles, ah, five thousand feet.***

(Meaning, ATC was still expecting Flight 965 to fly the arrival as published, starting at Tulua). The crew, however, had it backwards in their mind. They thought the arrival started at ROZO. After Tulua, they programmed the FMS to go direct to ROZO NDB by inputting the ROZO identifier "R" as depicted on the enroute chart. They also verified and listened to the Morse code identifier. However, because of FMS database hierarchy, inputting "R" caused the FMS to select the ROMEO NDB, which had the same frequency, 274 kHz, and the same "R" Morse code identifier, but was 132 miles East of Cali, in Bogotá.

Passing Tulua at 17,358 ft with a 1,300 ft per minute descent, the aircraft started a left turn direct to the errant ROMEO NDB. Unbeknownst to the crew, they are descending into mountainous

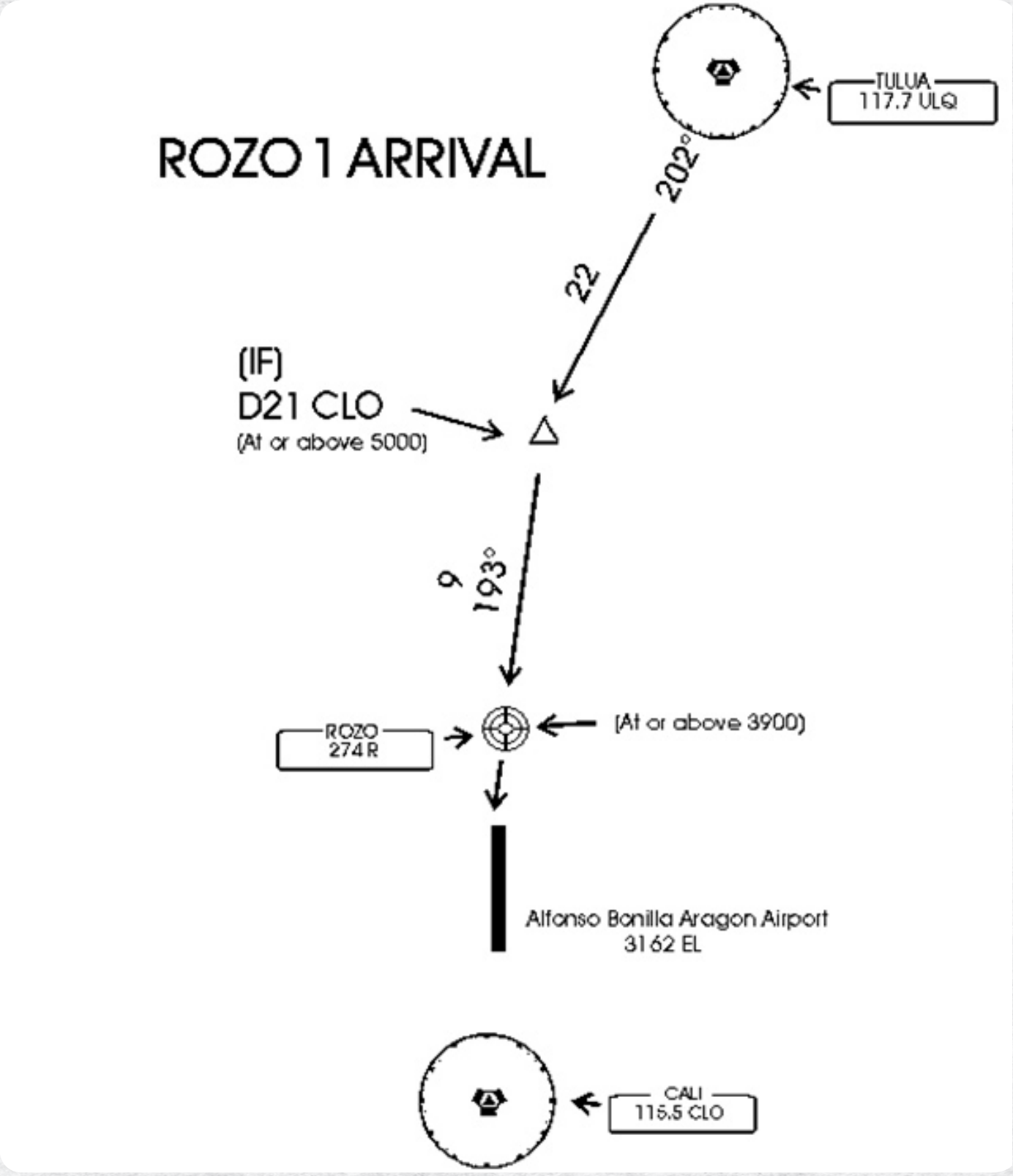
terrain rising to over 13,000 ft. One minute later, the First Officer asks.....

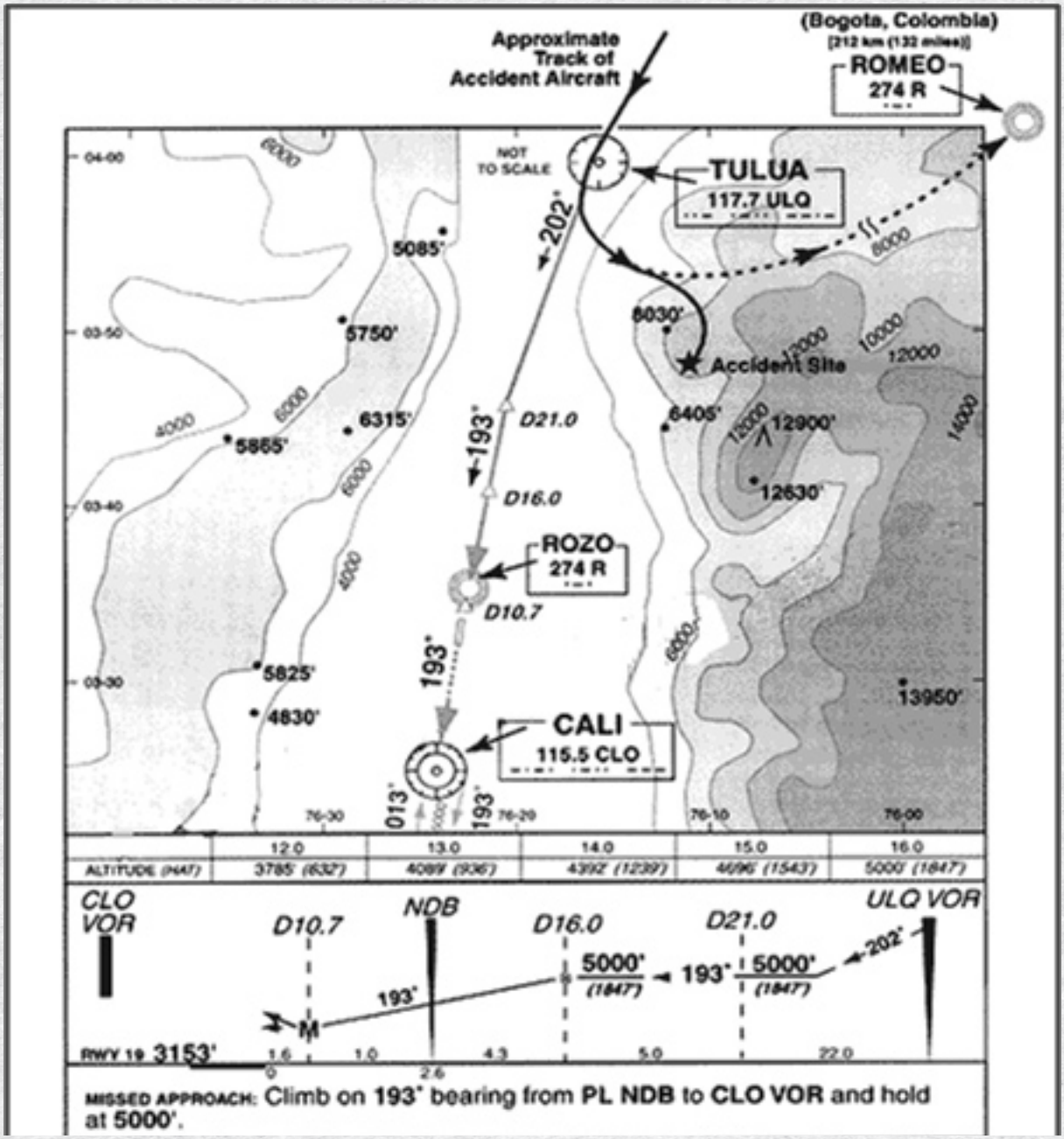
2138:49 First Officer: ***Uh where are we... we goin' out to...***

2138:54 Captain: ***Let's go right to uh, Tulua first of all, Okay?***

2138:58 First Officer: ***Yeah, where we headed?***

The crew continues to be confused by the conflicting relationship between their heading, their perceived position relative to the fixes, the headings commanded by the FMS, and their expectations.





After passing 13,600 ft and reaching a heading of 100 degrees, the aircraft reverses turn back to the right.

2139:30 First Officer: ***Left turn, so you want a left turn back around to ULQ?***

Aircraft again reverses turn, this time back to the left. Passing 6 degrees of left bank, the aircraft rolls into a right turn again with 20 degrees of bank.

2139:32 Captain: ***Nawww... Hell no, let's press on to...***

2139:35 First Officer: ***Well we're...press on to where though?***

2139:37 Captain: ***Tulua.***

2139:39 First Officer: ***That's a right.***

2139:40 Captain: ***Where we goin? One two... come to the right. Let's go to Cali first. First of all...let's...we got [expletive] up here didn't we?***

After more discussion, the captain asks approach.....

2140:01 Captain (radio): ***American uh, thirty eight miles North of Cali, and you***

want us to go Tulua and then do the ROZO uh, to uh, the runway, right? To runway one-nine?

2140:11 Cali Approach: ***Niner-six-five, you can land, runway one-niner, you can use, runway one-niner. What is your altitude and the DME from Cali?***

2140:21 Captain (radio): ***Okay, we're thirty seven DME at ten thousand feet.***

The aircraft is descending at 2,700 feet per minute in a 20-degree right bank.

2140:34 Captain: ***Come to the right, come, come right to Ca... Cali for now, OK?***

2140:35 First Officer: ***Okay.***

The captain is still attempting to solve what he thinks is an FMS problem.

2140:40 Captain: ***It's that [expletive] Tulua I'm not getting for some reason.***

2140:44 Captain: ***See, I can't get, okay now, no, Tulua's [expletive] up.***

2140:48 First Officer: ***Okay. Yeah.***

2140:49 Captain: ***But I can put it in the box if you want it?***

2140:52 First Officer: ***I don't want Tulua. Let's just go to the extended centerline of uh...***

2140:55 Captain: ***Which is ROZO.***

2141:15 Ground Proximity Warning System: ***Terrain, terrain, whoop, whoop...***

Two seconds later, passing 8,480 ft (1,476 AGL), the crew initiates terrain avoidance maneuvers.

2141:27 Ground Proximity Warning System: ***Whoop, whoop, pull up. Whoop, whoop, pull up.***

2142:00: Sound of impact

Pop Quiz

1) Did the aircraft Flight Management System "work as advertised"?
2) Did the crew review the instrument arrival procedures?
3) Did the crew lose situational awareness?
4) Did the crew exhibit "Strength of an Idea" (The tendency to ignore clues that contradict what we're sure we already know).
5) Were there any survivors of the accident?

(See page 31 for answers)

Pick Your Hazard!

We asked everyone on base "What's the most dangerous thing you do?" Here are some of the responses:

Liquid oxygen servicing / Driving at night on the flightline
Medication errors / Being exposed to blood and bodily fluids
Responding to a domestic incident / Working with radio frequencies
Working in confined spaces / Working around blood-borne pathogens
Raising the aircraft onto jacks during high winds / Needle sticks
Flying a school bus at 500 feet at night / Wisdom tooth extractions
Defusing bombs / Working on autopilot systems with power applied
Working with high pressure lines / Refueling flightline equipment
Climbing antennas and towers / Handling hazardous medical waste
Changing chlorine gas cylinders / Going inside a C-130 fuel tank
Training unqualified personnel / Working around live electrical circuits
Working the mobility processing line for equipment
Standing on a step stool to reach high areas
Supervising inexperienced firearm handling

What could ALL of these respondents (and YOU) use to make the "most dangerous thing" safer to do?

(see stereogram)

STEREOGRAM

Bring the image really close to your eyes (until you touch it with your nose). At this distance your eyes cannot focus on the image, and they look somewhere behind it. Now, slowly push the image away from you, while trying to keep the eyes off focus. At some point you will see the hidden image. (Answer revealed on page 31)

Figure 1

FIRE STARTER

By MSgt Woodrow Wilson Jr., 27 SOW/SEW

Well, most of us know that oil and water do not mix. Truth be told, neither do fire and explosives. Newly assigned to the weapons safety community, I could not have imagined what was in store for me as a safety professional. Although we all go through the explosives safety course and learn how to site plan from austere locations, some questions still seem to arise--like fire protection. Specifically, I'm talking about fire prevention requirements per Section 10 of AFMAN 91-201, *USAF Explosives Safety Standards*. This particular section states, "Fire or excessive heat is one of the greatest threats to explosives".

As I prepared for my first rotation as a deployed weapons safety manager (WSM) into the Area of Responsibility (AOR), one thing stood out in my mind, the weapons safety Cardinal Rule; "Expose the minimum number of people to the minimum quantity of explosives for the minimum amount of time". Upon my arrival in the AOR in the spring of 2004, all I heard was that I needed to get a tour of the Munitions Storage Area (MSA). As I made the rounds with the departing WSM, we, of course, needed to tour the "infamous" MSA. Infamous because of all the different types of foreign munitions that were stored inside. Before the tour, however, we initiated a fire drill, which is required whenever there is a change in WSM. All areas that were required to be checked--the fire plan, munitions control, map, etc., were checked and found to be in order. It was a pretty impressive first impression if you know what I mean. So far, so good.

Now it was time for the MSA tour. While outside going from bunker to bunker evading Explosive Ordnance Disposal (EOD) marked off areas, I noticed the grass was growing extremely high, especially around the cache of Iraqi munitions. However, the two most important priorities of the new deployed Chief of Safety were: 1.) get rid of at least 1.9M rounds of stored Iraqi munitions by either removal or EOD demolition, and 2.) install fire breaks in the MSA. Neither was a quick fix.

With summer fast approaching, the vegetation was drying up quickly. Fires were breaking out almost daily, which kept our deployed fire department personnel very busy. By following established policy, base leadership was kept up-to-date on all potential fire hazards/dangers. These hazards ranged from individuals smoking outside of designated smoking areas, to rocket/mortar attacks, to improperly stored combustible materials.

Figure 2

Figure 3

Our first grass fire warning came after an attack in which a rocket/mortar landed harmlessly away from personnel, facilities, and aircraft. However, it didn't take long to see a flickering light when the grass caught fire. The fire was fast approaching three fuel bowsers, which stored the fuel for the base. Even though more protective measures were in place around the fuel bowsers than required, we hadn't applied this to vegetation control in the MSA.

AFMAN 91-201, Para 2.21.2.2, states, "The primary purpose of vegetation control is to limit the probability of combustible vegetation catching fire, and slow the spread of vegetation fires". Despite all of the indicators about the dangers of poor vegetation control, it didn't come together until early one evening under the Iraqi skies of Kirkuk AB.

After a rocket/mortar attack, we went into alarm red. This was normal, nothing unusual, same old routine of waiting until the 'All Clear" signal was given--or so it seemed. Suddenly, sirens and horns were glaring all around us. Then I heard someone say that it was unusual for them [insurgents] to fire so many rockets/mortars at us. The next thing I knew, someone else called out that they saw a flickering light near the MSA. A rocket/mortar had just hit between the detention center and the MSA, setting the grass on fire (FIG 1). I saw the fire response team trying to contain it, but there were several more large explosions. Immediately I knew it wasn't just another rocket/mortar attack, instead the munitions in the MSA were propagating.

As I rushed to the command post, all I could think about was the large quantity of Iraqi munitions seized, separated, and stockpiled out in the open. Everything was going off like a New Year's celebration times two! After approximately six hours, all the larger Iraqi munitions had exploded (FIG 2). Twenty-four hours later, EOD entered the area (FIG 3). It took EOD 2-3 days just to make safe paths through the MSA. Amazingly, there was only minor damage to some nearby structures and no personnel injuries.

In summary, the motar did in fact light the overgrown vegetation on fire, which in turn, caused 95% of the seized munitions to go off. Now ask yourself, how high would you let your grass grow?

"Your own safety is at stake when your neighbor's house is ablaze" Horace

Some of these are actual mishaps....Some of these are fake. Can you tell which ones are real and which ones are made up?

But did you ever try pulling one?

Jack's friend called and told him he had successfully killed a moose while hunting. However, he needed help pulling it out of the woods. Jack arrived, and asked his friend to move the truck as close as possible to the moose. His friend couldn't get closer than about 35 yards from the moose, so Jack tied a rope around the animal's head and started to pull him to the road. As Jack slowly pulled the moose out of the woods, he slipped on the wet, leaf-covered terrain. He fell backwards and landed in a seated position on the moose's antlers, resulting in multiple puncture wounds. Jack called for an ambulance and was transported to the local hospital where he was treated and released. No word on the moose, but it's doubtful he recovered.

No...you gotta blow it out!

To celebrate her birthday, Stacy's friends took her to a bar to engage in an unusual birthday festivity. While Stacy's friends covered her in artificial snow, the waitresses handed out lit sparklers to bystanders. One of the sparklers ignited the snow, which quickly led to Stacy being engulfed in flames. After her friends successfully beat out the flames, they took her to the hospital, where she was released with first and second-degree burns to the face and neck. Too bad she couldn't re-gift that one.

I wonder if it was Dogwood?

Jeff, a former high school shop student, was cutting a board in his garage with a table saw. As he was cutting, Jeff's dog ran out of the house and began to jump up against him. Trying to avert tragedy, Jeff used one hand to steady the board and the other hand to push the dog away. While keeping his eyes on the dog, he tried to return his hand to the board, but instead put his hand in the path of the saw blade. In addition to severing the tip of his pinky finger, Jeff suffered bone loss, tendon damage, and nerve damage to his remaining fingers. Fortunately, he can still count to ten.

And they steal your breath!

Cindy was standing outside when she saw her cat run across the yard. She decided the foot race was on! On her first step, she stepped on a skateboard, lost her balance, fell backward, and hit her head. She regained consciousness, eventually went to the hospital, and ended up with a concussion. The cat won the race.

Hey Bro...hold my ammo.

Mark had just bought a new handgun a few days ago. He was over at Chuck's house when he decided to take the gun apart. Although he hadn't read the manual, he was trained on six other guns. With the clip in, he racked back the slide to see if a round would eject. He didn't visually check, but Mark figured that since no round ejected, the gun must be empty. He pulled the trigger and sent a bullet through Chuck's right thigh, through his left calf, and into the chair where Chuck's wife was sitting. Mark was off their holiday list five minutes later. Chuck was back at work two weeks later.

What would he have done if it needed to be washed?

After getting dressed to go out with a friend, Reggie noticed that his shirt was wrinkled. He took a hot iron and, while wearing the shirt, tried to iron out the wrinkles. The second-degree burns on his stomach kind of flattened out the evening.

Did she buy herself a Get Well card?

Marsha Marsha Marsha was reading greeting cards at a local store while carrying her purse on her shoulder. When her cell phone rang, she pulled her purse around in front of her with the same hand that was holding a card. Before she could answer her phone, however, her hand slipped off the purse. The corner of the card sliced into her eye resulting in a paper cut to her cornea.

Aaaahhh! I cooked myself!

Steve went to a tanning salon and fell asleep on the tanning bed. Three days in the hospital...second-degree burns. An exhaustive investigation revealed fatigue was a factor.

"Can I just get a Coke?"

Lisa and a bunch of friends were mixing and drinking flaming shots outside their dorm. A aming shot is made by mixing the ingredients together, lighting it, then drinking it. When it was Lisa's turn, she accidently splashed the drink on her own face. When the flames were finally extinguished, Lisa was left with second-degree burns to her face, neck, and hands.

But can you do this?

Tony was showing some friends a trick. It involved starting from a standing position, transitioning to laying on his back, and then going back to a standing position all while juggling three pool balls. While he was on his back juggling into the air, he missed one of the pool balls, which fell and struck him in the head. One of the subsequent falling balls then struck him in the mouth and knocked out a front tooth.

(See page 32 for answers)

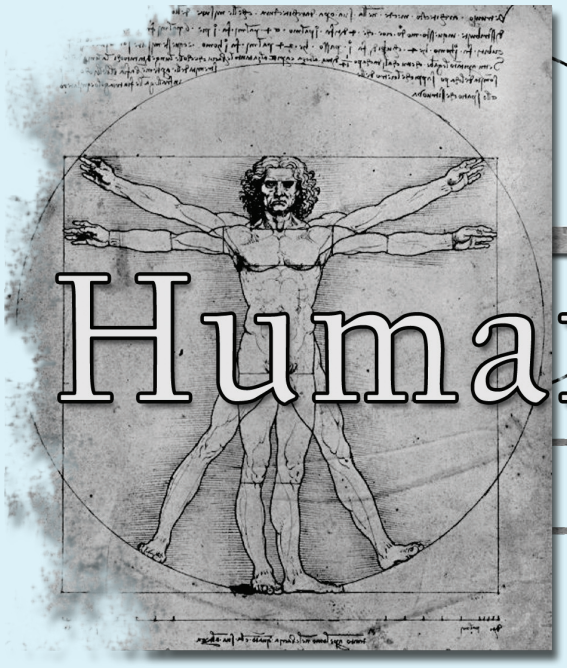
Try Your Luck at the Safety-Related Word Search

S	U	R	V	E	N	N	N	U	Y	A	W	O
S	E	C	I	V	E	D	Y	T	E	F	A	S
A	L	E	J	E	O	T	E	I	G	G	R	Y
V	C	I	C	T	A	F	L	R	O	T	N	T
I	I	S	E	N	A	T	O	L	I	V	I	I
A	H	G	K	S	J	U	D	G	M	E	N	T
T	E	N	G	I	N	E	E	R	I	N	G	N
I	V	I	R	D	L	C	G	A	S	D	S	A
O	R	N	F	I	A	L	R	U	E	N	N	U
N	O	I	T	P	E	C	R	E	P	E	N	Q
N	T	A	S	I	R	A	T	V	S	S	N	N
P	O	R	A	E	L	C	U	N	U	I	U	S
C	M	T	C	D	I	S	T	A	N	C	E	E

Find the following:

- 5 Mishap Categories
- 4 Ways to Mitigate Hazards
- 3 Types of Human Factor Errors
- 2 Elements of Munitions Hazards
- 1 Job Every Airman Has

(Answer key on page 32)



Human Factors FACTOIDS

By Capt Jeffrey Cathey, 19 MDG/AMDS/SGPT
and TSgt Roy Bradford, 27 SOAMDS/SGGF

Hydration: Fit to Fight, the First Line of Defense

As weather changes from the different seasons, there are many things to take into consideration. Did I change the filters for the heating/cooling system in my house? Does my car have the appropriate maintenance? Is my lawnmower blade sharp? These are just a few things that we check to get ready for a change of seasons. One thing we have a tendency to neglect is the most important part of the whole process. Yes, you guessed it, the human body and the fact that hydration is the key to us performing at our peak. So as we get ready for summer, here are a few tips to help you prepare.

Plan Ahead

Considering the extreme temperatures we deal with in eastern New Mexico and the areas that we deploy to, it is critical that all of us are familiar with the warning signs of heat related illnesses, but it is more important that we know how to prevent them. The best thing we can do to prevent the onset of heat stress is to stay hydrated. Typically 60% of a person's body weight comes from water. Water is considered the most crucial nutrient for our bodies and is essential to maintaining proper body temperature. It also flushes toxins out of vital organs, carries nutrients to cells and provides moisture for ear, nose and throat tissues. Our bodies lose water through breathing, perspiration, and urination so the water supply needs to be replaced on a continuous basis.
The amount of water required varies between individuals but there are a few simple guidelines to determine if you are maintaining adequate hydration.....

1. Replace fluid loss; the average healthy adult living in a temperate climate loses about 2 liters of fluid per day so drinking 2 liters of water per day will generally be adequate.

2. Consider your environment; hot climates, high elevations and heated rooms all cause the body to lose more water so intake must be adjusted accordingly.

3. Consider workload; higher workloads, especially in the environments listed above, will cause substantial water loss and require increased intake.

4. Urination is probably the most practical way to tell if you are adequately hydrated. Urine should be colorless or slightly yellow. If urine output is a darker color, you are falling behind in your hydration.

Drink Water Regularly

A good habit to get into is carrying a bottle of water with you and drinking small amounts throughout the entire day. If you wait until you are thirsty, you are already dehydrated by about 2% of your body weight. If you become 3% dehydrated, your ability to do physical activities will be reduced by as much as 50%. Avoid "chugging" large amounts of water. This practice will sometimes lead to frequent urination, which limits the hydration process.

Can I Drink Too Much Water?

It is possible to drink too much water, however most people should probably be concerned about not drinking enough. There are extreme cases of people drinking so much water that they created a state of "water intoxication" where the body's electrolytes became extremely diluted. A woman in Sacramento, CA died from this condition recently while participating in a water drinking contest sponsored by a local radio station. These cases are rare; if you maintain a proper diet it is difficult to drink too much water.

I Hate Water...What Else Can I Drink?

Water is usually the best option to replace fluid loss but if you absolutely can't stand to drink it, sugar-free flavored water is a good option. Sports drinks are also good,

especially when participating in strenuous activities. Beverages that contain sugar and caffeine are not "off limits" but should not be used as the only source of fluid intake. Some foods provide the body with water as well. Therefore, drinking water is not the only way to hydrate, but it is the preferred method.

Prevention

Remember hydration is the most important element in a plan to prevent heat casualties. Full hydration is critical because it is essential to maintain both blood volume for thermoregulatory blood flow and sweating. Both are reduced by dehydration. Consequently, the dehydrated Airman has less ability to maintain body temperature in the heat. All Airmen are optimally capable to manage heat stress when they are fully hydrated, physically fit, acclimated, well nourished and well rested.

Fit to Fight

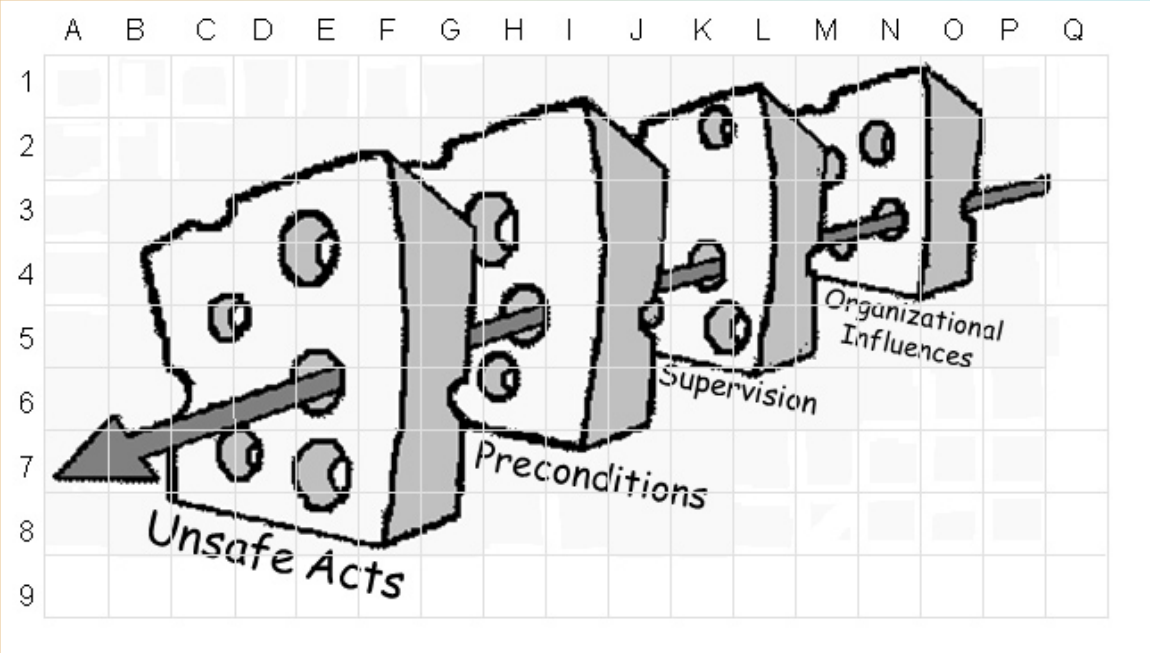
Preventing heat-related injuries needs to become part of our day-to-day lifestyle. All Airmen have the responsibility of being able to provide Self-Aid and Buddy Care when necessary. Given the environments we are commonly tasked to serve in, recognition of potential heat-related injuries is important to all of us.

Answer Key for Puzzles

Pick Your Hazard: The Stereogram reads **"ORM"**

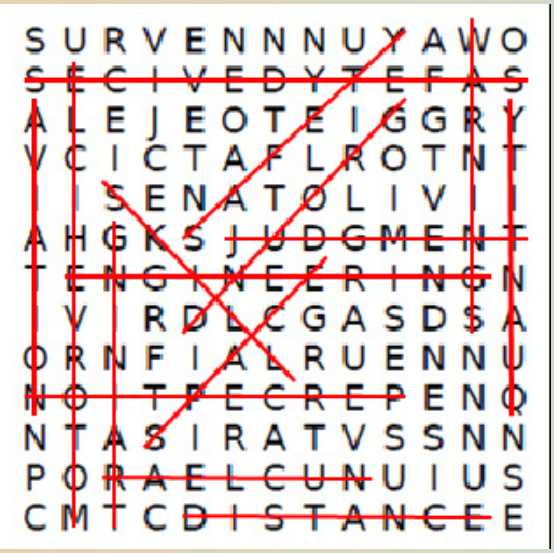
Where Are We Headed? 1) Yes. 2) No. Had they reviewed the arrival, things would likely have made sense. 3) Absolutely. Of particular concern is that there was no discussion of terrain in the area. 4) It appears the captain did. He was sure the arrival started at ROZO, and that he had tuned the FMS correctly. When the FMS gave steering data that conflicted with his perception, he assumed either the FMS or NAVAID was malfunctioning. 5) Yes. 4 survived, 164 were killed.

A Model Mishap



Real or Made Up Mishaps? The only "made up" mishap is "But can you do this?" All the rest actually happened.

Word Search



5 Mishap Categories
NUCLEAR, SPACE, AVIATION, MOTOR VEHICLE, GROUND

4 Ways to Mitigate Hazards
ENGINEERING, SAFETY DEVICES, WARNINGS, TRAINING

3 Types of Human Factor Errors
SKILL, JUDGMENT, PERCEPTION

2 Elements of Munitions Hazards
QUANTITY, DISTANCE

1 Job every Airman has
SAFETY

"For safety-critical jobs we should be monitoring fatigue as much as alcohol. The difference is that alcohol is very easy to measure but fatigue is not." Andrew Smith